Following are a list of questions and/or topics which appear in Unit 3, for trainees to answer and discuss. Although information is provided in the Trainee Guide and Instructor Guide, you should be prepared to discuss these questions/topics and give additional information and examples, based on local agency guidelines and your experience. Additional supporting graphics should be used to illustrate medical concepts. Keep them simple, though, because you are not teaching an advanced anatomy or biology class.

1. Can you describe the levels of consciousness? How do you determine each level of consciousness? (Be prepared to give sample descriptions that are based on real-life scenarios.)

2. What is shock? What are its signs and symptoms? Can you name 5 types of shock? How would you tell a caller to deal with shock?

3. Can you describe respiratory distress? What are the major signs and symptoms of true respiratory distress? How is it different from breathing difficulty?

NOTE: This unit can be combined with Module 3. If you (or the advisory committee) choose to do so, be sure that you tell the trainees you are going to do this and make sure their text, your text, and all graphics coordinate properly.

TRAINEE TEXT	INSTRUCTOR NOTES

UNIT OVERVIEW

<TG PAGE 1-43>

Introduce the unit.

As an EMD, you respond to many medical/traumatic emergencies as a regular part of the job. Therefore, it is very important that you know some basic medical information that will assist you in determining the nature and needs of medical emergencies. This information will also make it easier for you to communicate with various people within the EMS system.

Unit 3, Introduction to Emergency Medical Concepts provides you with that basic medical knowledge. You will learn about the seven systems of the body, as well as learn what *really* kills patients. Also included in this unit is basic information regarding shock, bleeding, respiratory distress and a glossary of common medical terms that you will hear at your job.

UNIT OBJECTIVES

Unit Learning Objective

Upon completion of this unit, you will be able to:

State the unit learning objective(s).

4. Describe medical concepts as they relate to the EMD function.

Enabling Learning Objectives

To meet the unit learning objective, you will:

4.1 Describe the seven systems of the body.

4.2 Describe what really kills a patient.

4.3 Define shock.

TRAINEE TEXT	INSTRUCTOR NOTES
4.4 Describe methods for dealing with bleeding patients and patients in shock. 4.5 Describe the levels of consciousness and how to determine them.	

TRAINEE TEXT	INSTRUCTOR NOTES

SYSTEMS OF THE BODY

<TG PAGE 1-45>

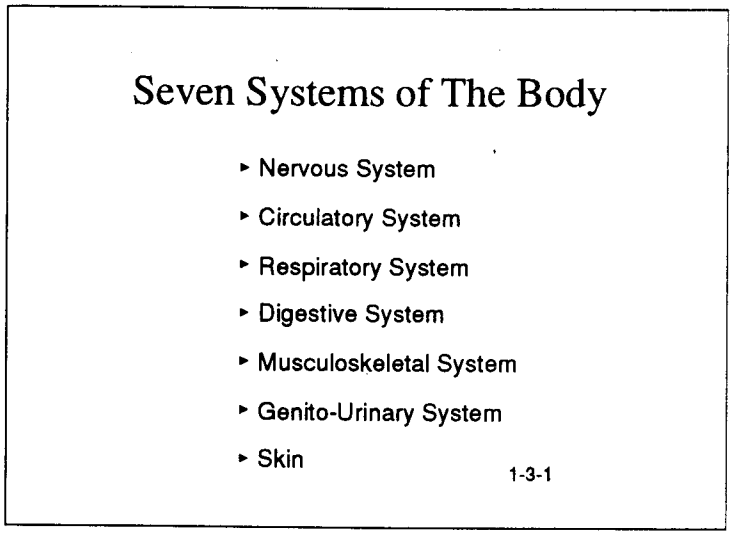
The human body is a complex organism. To lessen this complexity, it helps to think of it in terms of having seven major systems. Each system has a specific function and, in ***most*** cases, operates using an entirely different set of organs than the other systems. These systems are explained below.

Seven Systems of The Body

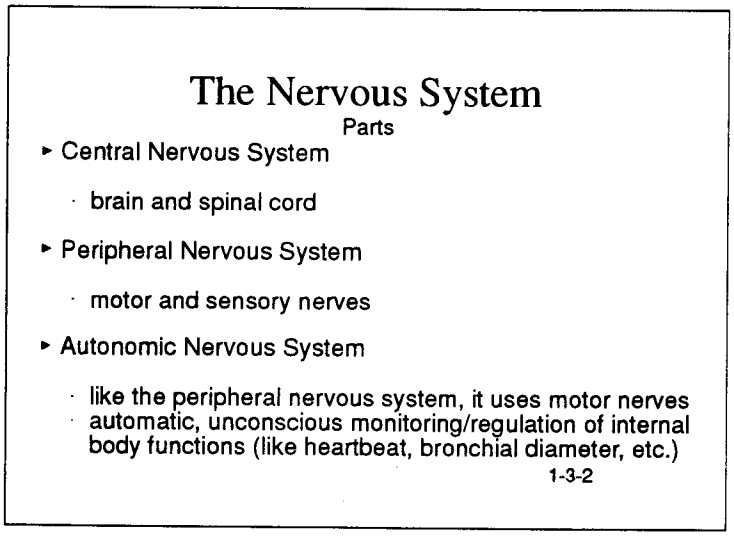
Show Figure 1-3-1.

Each system has its own job and special functions that make it different from the other systems. You will learn about the Nervous System, Circulatory System, Respiratory System, Digestive System, Musculoskeletal System, Genito-Urinary System and Skin. Each of these systems is described below.

List the seven systems of the body: Nervous, Circulatory, Respiratory, Digestive, Musculoskeletal, Genito-Urinary and Skin.

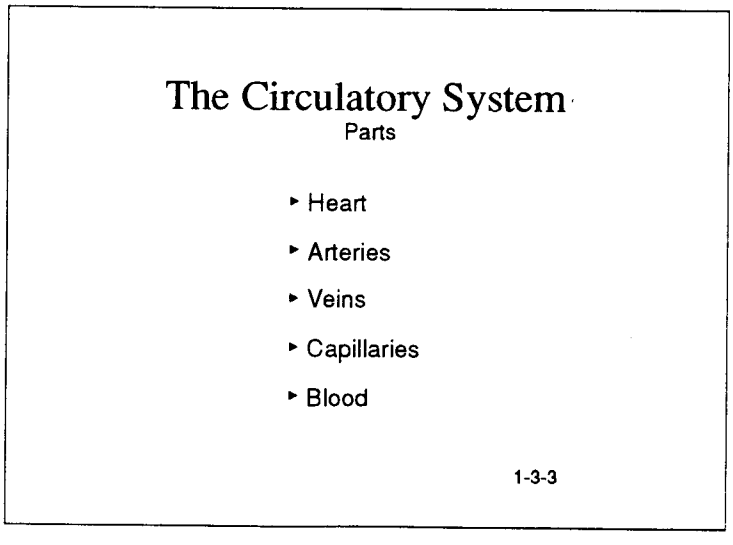


TRAINEE TEXT	INSTRUCTOR NOTES
System 1: The Nervous System. The nervous system is that part of your body that controls all of your body functions and allows for interaction with the outside world through sensation. This system is made up of the brain, spine, spinal column and all of your nerves.	**<TG PAGE 1-46>** **Show** Figure 1-3-2. **Discuss** the Nervous system.
The nervous system is made of three smaller subsystems; the *Central Nervous System,* the *Peripheral Nervous System* and the *Autonomic Nervous System.* Each of these systems is described below.	**List** the three subsystems of the Nervous system.
1) The *Central Nervous System* is made up of the brain and the spinal cord.	**Name** the parts of the central nervous system.
a) *The Brain.* The brain is the control center of the body. Nothing in the body happens without first being told to do so by the brain. It receives input from the nerves that are placed throughout your body and directs all of your body functions. The brain is also responsible for reason and thought.	**Briefly discuss** the brain.
b) *The Spinal Cord.* The spinal cord acts as an electric cable throughout your body. It is responsible for carrying messages from all parts of your body to the brain. It also carries messages from the brain to the parts of your body.	**Briefly discuss** the spinal cord.
2) The *Peripheral Nervous System* is made up of motor and sensory nerves.	**List** the parts of the peripheral nervous system.
a) *Motor nerves* are responsible for controlling movement. They tell muscles in your body to contract ("flex") or relax, causing movement.	**Briefly describe** motor nerves.

TRAINEE TEXT	INSTRUCTOR NOTES
b) *Sensory Nerves.* These nerves send messages to the brain (and get messages from the brain) about the world around you. They are responsible for recognizing feelings of hot, cold, light, pain, smell, taste, motion and balance.	**<TG PAGE 1-47>** **Briefly describe** sensory nerves.
3) The *Autonomic Nervous System* is also made up of motor nerves, like the peripheral nervous system.	**Describe** the Autonomic nervous system.
a) It transports messages from the brain to the body using the motor nerves like the peripheral nervous system. It provides automatic and unconscious monitoring and regulation of internal body functions.	
b) Its functions include heartbeat, the force of the heart's contractions, blood vessel diameter, bronchial diameter and pupil dilation and contraction in response to light levels.	
	**Show** Figure 1-3-3.

TRAINEE TEXT	INSTRUCTOR NOTES
System 2: The Circulatory System. The circulatory system carries blood to and from all parts of the body. The blood takes nutrients and oxygen (O_2) to the cells of the body and takes carbon dioxide (CO_2) and other waste products from the cells for removal from the body. The circulatory system is made up of the heart, arteries, veins and capillaries.	**<TG PAGE 1-48>** **Describe** the circulatory system.
1) The *Heart* is a four chamber pump and is the most efficient pump known to man. It is located below and to the left of the breastbone (sternum). It pumps blood through a series of one-way valves.	**Briefly describe** the heart.
2) *Arteries* carry oxygenated blood (blood that is carrying oxygen to cells) away from the heart to the body. Arteries have thick walls that expand and shrink as blood goes through them. They get smaller the further they get from the heart. Most arteries are protected from damage by being buried deep within the muscles or being protected by bones. If cut, arteries bleed a lot of bright red blood that comes out in "spurts."	**Describe** arteries.
3) *Veins* carry blood toward the heart. This blood has dropped its oxygen payload off for use by the cells and carries cell waste products and carbon dioxide away from the cells, to be eliminated from the body. Veins get larger as you get closer to the heart and do not expand or contract like arteries. If cut, they too can bleed a lot. However, this blood "flows" (not spurts) from the wound and is a dark red color.	**Describe** veins.

TRAINEE TEXT	INSTRUCTOR NOTES
NOTE: A normal adult has approximately 5-6 liters of blood. Simple cuts should clot within 6 to 10 minutes.	**<TG PAGE 1-49>** **Tell** trainees that adults only have 5-6 liters of blood and that clotting occurs within 10 minutes except in cases of hemophilia and bad bleeds.
4) *Capillaries* are thin-walled vessels. They are found between arteries and veins throughout the body. Capillaries carry oxygenated blood from the arteries to the cells of the body and exchange it for carbon dioxide and other waste products made by the cells. The waste products and blood are then taken to the veins and carried back to the heart. If cut, they "ooze."	**Describe** capillaries.
5) *Blood* is made of *plasma* (fluid that carries carbon dioxide, nutrients, hormones and water) *red blood cells, white blood cells* and *platelets. Red blood cells* carry oxygen to the cells and carbon dioxide away from the body (oxygen sticks to a substance known as *hemoglobin*). *White blood cells* fight diseases, and *platelets* are used to create clots.	**Describe** blood and its parts.

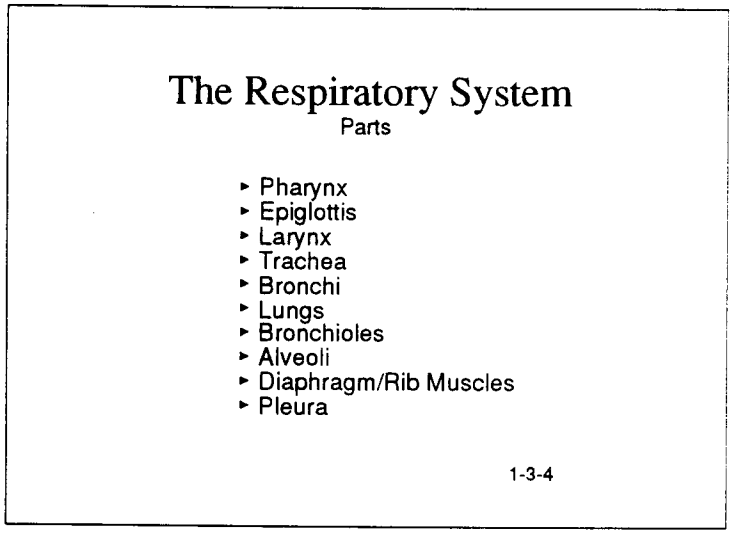


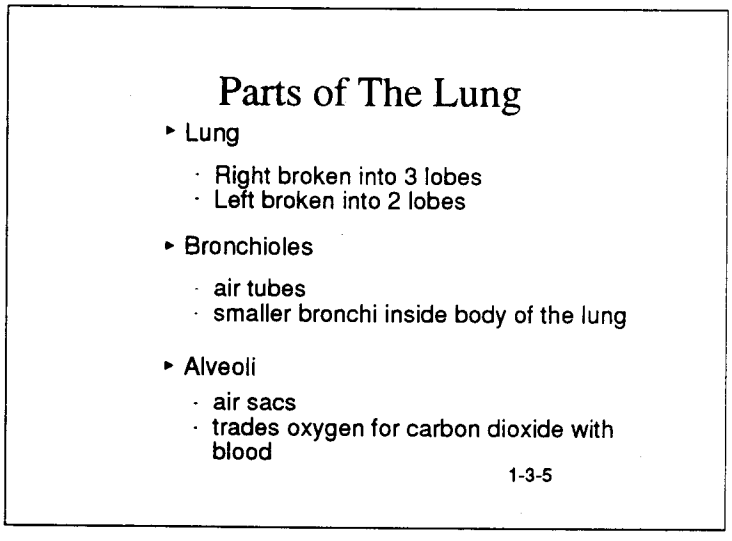
TRAINEE TEXT	INSTRUCTOR NOTES
System 3: The Respiratory System. The respiratory system is the system that makes/lets us breathe. It takes in the oxygen we need and is responsible for carrying out waste products, like excess water and carbon dioxide. It also is used to help you maintain your body temperature (known as "temperature regulation").	**<TG PAGE 1-50>** **Show** Figure 1-3-4. **Describe** the Respiratory System.
NOTE: It is absolutely necessary to the survival of a human that breathing continue. If breathing stops, the person will die.	**Tell** trainees that it is absolutely necessary to breathe or a person will die. It is for this reason that breathing status is always included in the initial surveys (questioning) of callers.
Respiration (breathing) is an automatic function. It is controlled by respiratory centers in the brain that are sensitive to the level of carbon dioxide in your blood. Carbon dioxide levels are constantly being monitored by carbon dioxide and oxygen sensors that are located in your carotid arteries (on the sides of your neck). When oxygen levels are too low you will breathe faster. If the carbon dioxide level gets too high, again, you will breathe faster.	**Describe** the automatic functioning of breathing and how it works.
NOTE: Airway obstructions can occur at any point in the respiratory system. It is important to note this and that obstructions don't just occur in the "throat."	**Tell** trainees that blockages can occur anywhere in the respiratory system, not just the "throat."
Agonal respirations are breaths that occur after cardiac arrest and are ineffective in gathering oxygen for the body. They are frequently described as "weak," "heavy," "gasping," "snoring," gurgling" or "moaning." The rate at which these respirations occur are usually referred to as "weak or heavy," "occasional" or "every once in a while.".	**Describe** agonal respirations.

TRAINEE TEXT	INSTRUCTOR NOTES
Generally the caller will not identify cardiac arrest to you because the patient shows these respirations. In some cases, you can identify these respirations by listening. You may be able to hear the patient's breathing in the background (when the caller is near the patient).	**Review** "presentation" (how callers describe something) of agonal respiration.
The respiratory system is made up of the following parts:	**<TG PAGE 1-51>** **List and review** the parts of the respiratory system. **Show** Figure 1-3-4.
1) The *pharynx* is a two channeled organ through which air enters and exits the body. It includes the nasal (in the nose) and oral phalanx (in the mouth). Air can travel in or out through either one of these.	**Briefly describe** the pharynx.
2) The *epiglottis* is a leaf-shaped organ that hangs over the opening of the larynx. When you swallow, it covers the larynx, making food go down the esophagus instead of to the lungs.	**Briefly describe** the epiglottis.
3) The *larynx* is the narrowest part of the respiratory system. Also called the "voice box," it is called this because the vocal cords are found here. If anything gets past your epiglottis and touches them, they will clamp down in an effort to protect your lungs.	**Briefly describe** the larynx.
4) The *trachea* is a round air passage (tube) that is approximately four inches long, through which air passes in and out. It is held open by a series of cartilage "rings."	**Briefly describe** the trachea.

TRAINEE TEXT	INSTRUCTOR NOTES
5) The *bronchi* are two passages, each passage going to a lung.	**Briefly describe** the bronchi.
	Show Figure 1-3-5.
6) The *lungs* are where the actual exchange of oxygen and carbon dioxide takes place. Normal humans have two lungs, with the right lung divided into three lobes and the left lung divided into two lobes	**Briefly describe** the lungs.
7) *Bronchioles* are small air tubes that are found in the body of the lungs. They are simply bronchi that are broken down into smaller branches.	**Briefly describe** the bronchioles.
8) The *alveoli* are small (microscopic), thin walled air sacs. The oxygen exchange takes place across the membranes between the alveoli and the capillaries.	**Briefly describe** the alveoli.
9) *Diaphragm/Rib Muscles* are used to expand (during inhalation) or contract (during exhalation) your lungs. The diaphragm is the major muscle of breathing. "Intercostal muscles" are located between the ribs and also help you breathe.	**<TG PAGE 1-52>**
	Briefly describe the diaphragm.
10) *Pleura* are two thin membranes covering the surfaces of the lung. They serve to lubricate the lung and allow it to easily expand (during inhalation) and contract (during exhalation).	**Briefly describe** the pleura.

TRAINEE TEXT	INSTRUCTOR NOTES



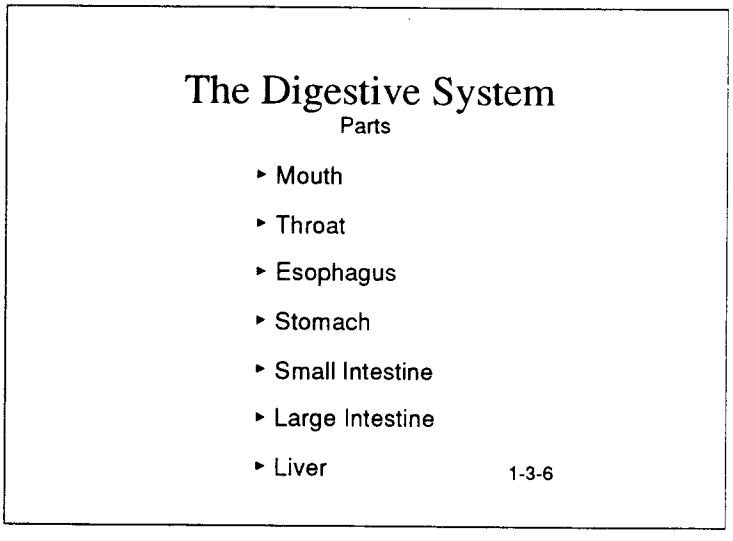


<TG PAGE 1-53>

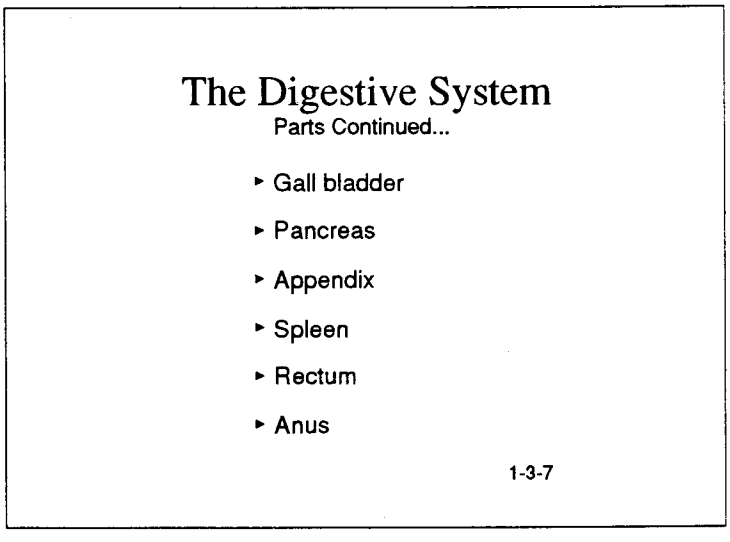
System 4: The Digestive System. This is the system that is responsible for your eating, digesting food and liquids and eliminating waste. The process of digesting food provides your cells with the fuel they need to work. There is only a small number of foods that can be used directly without being broken down.

Discuss the digestive system and its parts.

TRAINEE TEXT	INSTRUCTOR NOTES
The digestive system is made of the following components:	**Show** Figure 1-3-6.
1) The *mouth* chews food, moistens food with saliva and starts the swallowing process. Saliva is produced by your salivary glands at a rate of about 1.5 liters per day. Chemicals in your saliva start digestion by beginning to break down food.	**Briefly discuss** the mouth.
2) Your *throat* consists of the pharynx which is used to transport both food and air. When this is blocked, it is called an "airway obstruction."	**Briefly discuss** the throat.
3) The *esophagus* is about ten inches long. It forces food down toward the stomach by constant, rhythmic contractions which begin at the top and go to the bottom.	**<TG PAGE 1-54>** **Briefly discuss** the esophagus.
4) The *stomach* receives and stores food. It helps push food down toward the bowels. The stomach makes 1.5 liters of *pepsin* per day. Pepsin is used to break down proteins. Digestion in the stomach usually lasts one to three hours.	**Briefly discuss** the stomach.
5) Your *small intestine* receives liquids made by your pancreas, liver and gall bladder. These are used to further digest food. The small intestine is approximately twenty feet long and is made of three sections; the duodenum, jejune and ilium.	**Briefly discuss** the small intestine.
6) Your *large intestine* is approximately five feet long. Its main purpose it to absorb liquid from digested food as it passes through. It absorbs approximately 5-10% of the moisture residing in the products of digestion.	**Briefly discuss** the large intestine.

TRAINEE TEXT	INSTRUCTOR NOTES
7) The *liver* is a very important organ. It changes sugars, fatty acids and amino acids into simpler products for the body to use. It also neutralizes the harmful products that are produced by digestion. Sugars that are to be used immediately by the body are stored there. The liver also produces products that help your platelets clot, and it also makes products that improve your body's ability to fight diseases.	**Briefly discuss** the liver.
	**<TG PAGE 1-55>** **Show** Figure 1-3-7.
8) The *gall bladder* produces and stores bile (approximately 2-3 oz). Bile is used to digest fats in your food.	**Briefly discuss** the gall bladder.
9) The *pancreas* regulates the level of sugar in the blood and also makes juices/enzymes that digest fats, starches and proteins. It has two main functions; producing the enzymes that digest fats, starches and proteins and producing *insulin* (which regulates sugar levels in the blood stream).	**Briefly discuss** the pancreas.

TRAINEE TEXT	INSTRUCTOR NOTES
10) The *appendix* is thought to play a part in the immune responses of children. It is about three to four inches long and has no other known purpose.	**Briefly discuss** the appendix.
11) The *spleen* produces and destroys blood cells. It's most important role is in fighting infection by acting as a filter to eliminate bacteria from the bloodstream. If destroyed, part of it's function can be taken over by the bones and marrow in your body.	**Briefly discuss** the spleen.
12) The *rectum* is a large, hollow organ used to store feces until expelled.	**<TG PAGE 1-56>** **Briefly discuss** the rectum.
13) The *anus* is about two inches long. It controls the escape of liquids, gases and solids produced by digestion through contraction of the *sphincter muscle*.	**Briefly discuss** the anus.



TRAINEE TEXT	INSTRUCTOR NOTES
System 5: The Musculoskeletal System. This is the system of bones, muscles and their connecting tissues. It gives support for the body and provides movement through the actions of muscles and joints. Vital organs like your lungs and heart are protected by bones, which also are responsible for making and destroying blood cells. Bones are also important for storing minerals that your body needs.	**Discuss** the musculoskeletal system and its parts.
Muscles are attached to bones. Muscles allow you to move through their contracting and relaxing actions. They also help us breathe (remember the diaphragm?), they help circulate blood (the heart *is* a muscle) and they aid in digestion (the stomach).	**<TG PAGE 1-57>** **List** the parts of the musculoskeletal system: head, chest, vertebral column, upper/lower extremities and pelvis.
The musculoskeletal system is made up of the following; the head, vertebral column, chest, upper extremities, pelvis and lower extremities. Other parts include the three types of muscles, tendons and ligaments.	**List** the parts of the musculoskeletal system: head, chest, vertebral column, upper/lower extremities and pelvis.
1) The *head* is composed of four bone groups; the *skull* (includes the cranium and base), the *face, maxillary* (upper jaw) and *mandible* (lower jaw).	**Describe** the head.
2) The *vertebral column* is also known as the *spinal column.* It has thirty-three bones, in the following order (head to tail); seven *cervical spine* (base of skull and neck), twelve *thoracic spine* (upper back), five *lumbar spine* (lower back), *sacral fused* (near pelvis) and *coccyx fused* (tailbone).	**Describe** the vertebral column.

TRAINEE TEXT	INSTRUCTOR NOTES
3) The *chest* is comprised of the ribs, sternum (breastbone), xiphoid and the vertebral column in the back.	**Describe** the chest.
4) The *upper extremity* is made of: a) the *shoulder girdle*, which is made of the *clavicle* (collarbone), the *scapula* (shoulder blade) and the *shoulder joint*; b) the *arm*, which is made of the *humerus* (upper arm); c) the *forearm*, which is made of the *radius* and *ulna* and d) the *hand*, which is made of *carpals, metacarpals* and *phalanges*.	**Describe** the upper extremity and its parts.
5) The *pelvis* is made of the ilium, the pubic symphysis and the iliac crest.	**<TG PAGE 1-58>** **Describe** the pelvis and its parts.
6) The *lower extremity* is made of: a) the *upper leg*, which is made of the *femur* (thigh bone), *knee joint* and *patella* (kneecap); b) the *lower leg*, which is made of the *tibia* and *fibula* and c) the *foot* which is made of tarsals, metatarsals and phalanges.	**Describe** the lower extremity and its parts.
7) The three types of *muscles* include: a) *voluntary muscles*, which are consciously controlled (like when you are walking);	**Describe** the three types of muscles.

TRAINEE TEXT	INSTRUCTOR NOTES
b) *involuntary muscles,* which are unconsciously controlled (like blood vessels, diaphragm) and c) *cardiac muscles,* which are the muscles that make the heart pump. The contractions are controlled by the autonomic nervous system and by hormones.	
8) *Tendons* and *ligaments* are connective tissues. Tendons connect your muscles to your bones. Ligaments connect your bones to other bones.	**Describe** the difference between tendons and ligaments.
	<TG PAGE 1-59>

The Musculoskeletal System
Parts

- Head
- Vertebral Column
- Chest
- Upper Extremities
- Pelvis
- Lower Extremities

1-3-8

System 6: The Genito-Urinary System. This system is made up of the organs of waste elimination and reproduction.

All humans have the following four parts in their urinary system. This system is responsible for the removal of liquid wastes from the body and is composed of:

Show Figure 1-3-9.

1) *kidneys,* which are used to filter wastes from your blood stream and make urine;

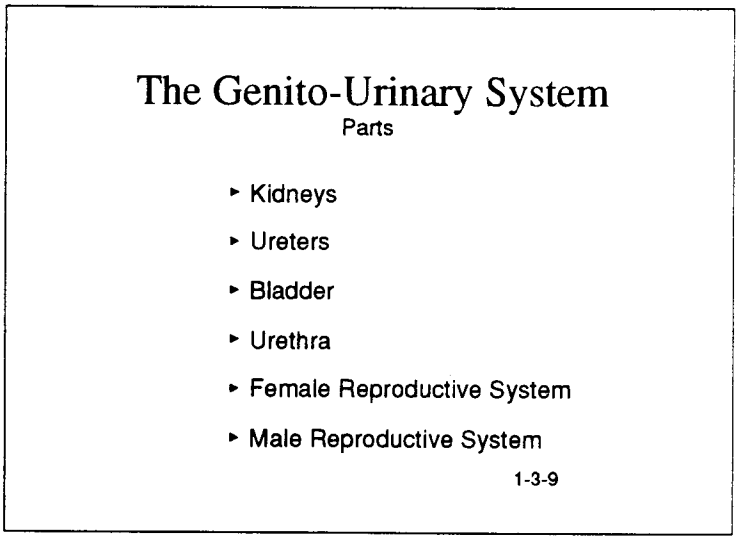
Discuss kidneys and their function.

TRAINEE TEXT	INSTRUCTOR NOTES
2) *ureters*, which are tubes that connect kidneys to the urinary bladder and through which urine flows to the bladder;	**Discuss** ureters and their function.
3) a *urinary bladder*, which is the reservoir for urine and	**Discuss** the urinary bladder.
4) a *urethra*, which is the tube that urine passes through on the way out of the bladder and body.	**Discuss** the urethra.
The human reproductive system differs between men and women. Each has its own parts and functions. Female and male reproductive systems are described below.	**<TG PAGE 1-60>**
1) The *female reproductive system* is made of the following parts:	**Describe** the female reproductive system and its parts.
a) *fallopian tubes*, which carry eggs from the ovaries to the uterus;	
b) *ovaries*, which produce female hormones; mature, store and release eggs;	
c) *uterus*, where the fetus (fertilized egg) develops and where menstruation (periods) occurs and	
d) *vagina*, the birth canal through which babies are born.	
2) The *male reproductive system* is made of:	**Describe** the male reproductive system and its parts.
a) the *prostate*, which surrounds the urethra and produces the fluid that makes up most of the bulk of semen;	
b) *testes*, which produce sperm and male hormones;	

TRAINEE TEXT	INSTRUCTOR NOTES

c) *scrotum*, which surrounds and protects the testes and

d) the *penis*, which contains the urethra and through which semen and urine passes.



<TG PAGE 1-61>

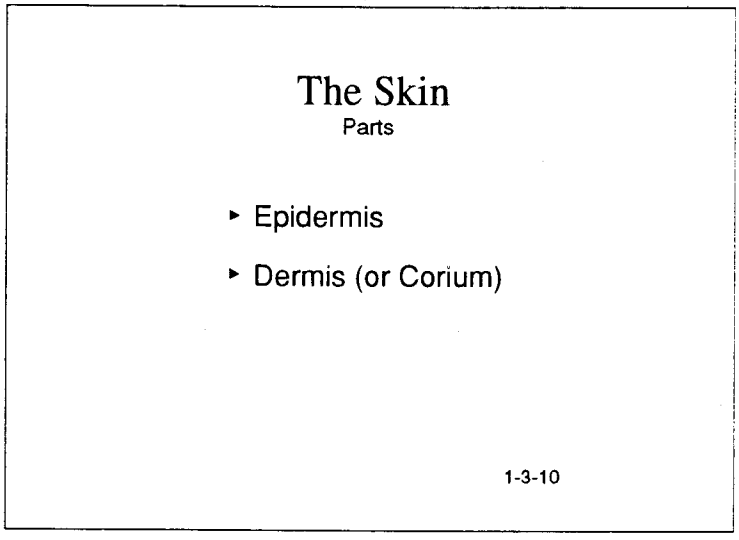
System 7: The Skin. The skin is the outer covering of the body and is the largest organ of the body. Skin serves as a protective barrier against microorganisms, protects the soft tissues and organs below it from injuries and acts like insulation against heat and cold. It even helps remove wastes from the body through sweat.

Describe the skin and its parts.

The skin performs other important functions as well. It provides protection against the sun's rays through pigmentation and it helps convert some of the sun's energy into vitamin-D. Finally, receptors in the skin enable the body to sense pain, heat, cold, touch and pressure.

TRAINEE TEXT	INSTRUCTOR NOTES
The skin consists of the following two major components:	**<TG PAGE 1-62>** **Show** Figure 1-3-10.
1) The *epidermis* is the thin, outer layer of skin. It is made up of various cell types, and its thickness varies across different areas of the body (thickest in the hands and feet). The outer layer of the epidermis is constantly being shed. Its cells are non-living and require no blood for nourishment. As long as the epidermis remains intact, no microorganism can enter the body through the skin.	**Discuss** the epidermis.
2) The *dermis* (or *corium*) is the inner layer of skin. It is the thickest layer of the skin. The dermis is made up of connective tissue that contains nerves, sweat glands and blood vessels. Sensations like heat, cold, touch, etc. are felt through the nerves found here.	**Discuss** the dermis/corium.
The body's reaction to heat and cold causes the expansion and contraction of the blood vessels found in the dermis. As a result of the expansion and/or contraction of the blood vessels in the dermis, more or less blood flows through the vessels. The end result of this expansion/contraction is the loss or conservation of body heat.	**Describe** how heat/cold affect the blood vessels in the corium.

TRAINEE TEXT	INSTRUCTOR NOTES



<TG PAGE 1-63>

Exercise 1: Systems of the Body - Match Game

Instructions: On the following page is a table consisting of questions and answers. In the left column are twelve answers. Write the number of the question that corresponds to the answer found in the left column.

Write your answers on the lines provided on the left side of the table. You have ten minutes to complete this exercise. Upon completion of this exercise, the instructor will review the answers with you. Be sure to ask any questions you may have at this time.

Tell trainees to complete Exercise 1. Answers are found in IG NOTE #2, Exercise 1, page 1-109 of this guide.

TRAINEE TEXT			INSTRUCTOR NOTES
	Answers	***Questions***	**<TG PAGE 1-64>**
	Central, peripheral and autonomic	1. Narrowest part of the respiratory system; aka "voice box"?	
	Pharynx	2. Parts of the pelvis?	
	Pancreas	3. Connect muscles to bones?	
	Motor and sensory	4. Four major parts of the circulatory system?	
	Kidneys, ureters, urinary bladder and urethra	5. Three subsystems of the nervous system?	
	Ilium, pubic symphysis and iliac crest	6. Carry oxygen to the cells?	
	Heart, arteries, veins and capillaries	7. Regulates level of blood sugar; produces enzymes that break down starches, fats and proteins?	
	Ligaments	8. Carry oxygenated blood to the body, away from the heart?	
	Red blood cells	9. Connect bones to bones?	
	Larynx	10. Two nerve types of the peripheral nervous system?	
	Tendons	11. Parts of the urinary system?	
	Arteries	12. Two-channeled body through which air enters/exits the body?	

TRAINEE TEXT	INSTRUCTOR NOTES

What Really Kills Patients?

Now that you understand the basics of the seven systems of the body, you need to understand what really kills patients.

<TG PAGE 1-65>

Discuss what kills patients.

Many **traumatic** emergencies get worse as time passes, while **medical** emergencies tend to get better over time. Three problems can worsen the medical situation over time. These are (1) severe blood loss, (2) breathing obstructions and (3) cardiac arrest. The EMD can have the most effect on these three situation by instructing callers in some form of emergency medical intervention.

Death is caused by many things. *Traumatic causes* are blood loss, airway obstructions that prevent breathing, shock and brain/spinal cord damage. The most common *non-traumatic* cause of death is cardiac arrest.

Levels of Consciousness, Shock and Respiratory Distress

Consciousness, shock and respiratory distress are the 3 major criteria used to determine dispatch categories. At this point you need to know a few things that will help you better do your job.

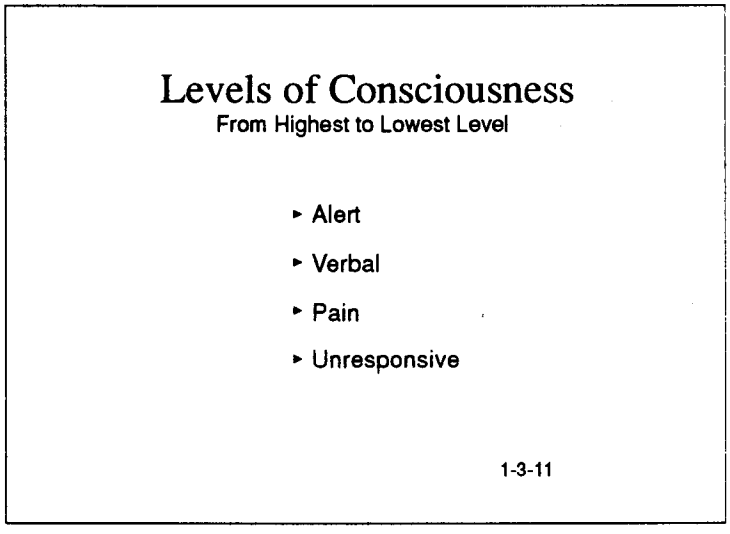
1) Consciousness is very hard to determine without actually seeing the patient. *You must rely on the protocols and information from callers to get you this information.* The protocols are designed to help you do this.

2) Not all sick people appear sick. At the same time, patients in shock or respiratory distress will look sick. When responding personnel get to the patient and they see a pale, diaphoretic ("sweaty"), weak and nauseous person they immediately know they have a sick person on their hands.

<TG PAGE 1-66>

TRAINEE TEXT	INSTRUCTOR NOTES
3) It is up to you to be able to recognize these truly sick people based on the information you get from callers.	
Levels of Consciousness. There are four levels of consciousness that you need to learn. They are taught in order of their level of severity, with alert being the highest level and unresponsive being the lowest and most serious.	**List and describe** the four levels of consciousness.
1) *Alert* (is the patient awake and aware of their surroundings?) is the highest level of consciousness. If a patient is determined to be alert, then there is less cause for concern.	**Show** Figure 1-3-11.
2) *Verbal* is the second highest level of consciousness. These patients are awake only when you talk to or yell at them (verbal stimulus). They tend to fall asleep unless you constantly talk to them.	
3) *Pain* is the second lowest level of consciousness. A person in this state is only able to be awakened with noxious (painful) stimuli. They require noxious stimulants to stay awake.	
4) *Unresponsive* is the lowest and most dangerous level of consciousness. Patients in this state can't be aroused by *any* stimulus.	

TRAINEE TEXT	INSTRUCTOR NOTES



<TG PAGE 1-67>

Determining Consciousness. How can you determine consciousness? Your EMDPRS protocols will help you figure out a patient's consciousness level. Generally, you can determine consciousness by asking the caller:

1) Is the patient awake?

2) Have you tried to wake them up?

3) Can they talk to you?

Tell trainees how to determine consciousness. Give them the three questions they need to ask the caller.

Don't worry about using consciousness categories with the responders. For example, if the caller says that the patient is talking gibberish and can only stay awake when they yell at him, then tell that to the responding personnel. You just need to recognize the level of consciousness and dispatch accordingly.

Tell trainees that it is much more important to pass on information to the responders exactly as they receive it rather than worrying about correct consciousness classification.

TRAINEE TEXT	INSTRUCTOR NOTES
NOTE: From a dispatcher's perspective, you are trying to determine whether a patient is conscious or is in an altered state of consciousness. Your priority is airway maintenance. It is not so important to determine why the patient is unconscious, all that matters is that the patient ***is*** unconscious. If the patient is unconscious, turn them on their side and monitor their breathing	**<TG PAGE 1-68>** **State** that you are concerned with determining consciousness. You are most concerned with breathing; so if the patient is unconscious, roll them on their side (unless you suspect spinal injury) and keep an eye on breathing.
QUESTION: *Can you describe the levels of consciousness? How do you determine each level of consciousness?*	**Ask** this question of trainees and have them tell you how to determine level of consciousness. You may want to prepare sample descriptions in advance that are based on real-life scenarios or like those found in Appendix B.
Shock. Shock is a major killer of patients. It can rapidly appear, almost without symptoms. For this reason, shock is often called the "silent killer." It is defined as "inadequate tissue perfusion." This simply means that there is a lack of circulation throughout the body, but most importantly to the major organs (heart, lungs, brain, kidneys, etc.).	**Show** Figure 1-3-12. **Define** shock.
1) *Symptoms of shock* (described by patient) include the following. Not all patients show these, and sometimes **none** are present:	**List/describe** symptoms of shock.

TRAINEE TEXT	INSTRUCTOR NOTES
a) a feeling of "impending doom" (that something terrible is going to happen soon, that death might be imminent); b) weakness; c) nausea; d) thirst; e) dizziness; f) coolness and g) restlessness/anxiety.	**Tell** trainees that "symptoms" are what are described by the patient while "signs" are things observed by the caller or a bystander. **<TG PAGE 1-69>**

Symptoms of Shock
Identified by Victim

- Sense of "Impending Doom"
- Weakness
- Nausea
- Dizziness
- Coolness
- Restlessness/Anxiety

1-3-12

2) *Signs of shock* (described by the caller based on their own observation) include the following: a) pale, cool and/or moist skin; b) shallow and/or rapid breathing;	**Show** Figure 1-3-13. **List/describe** signs of shock.

TRAINEE TEXT	INSTRUCTOR NOTES

c) lackluster eyes and/or dilated pupils (pupils appear larger than they should);

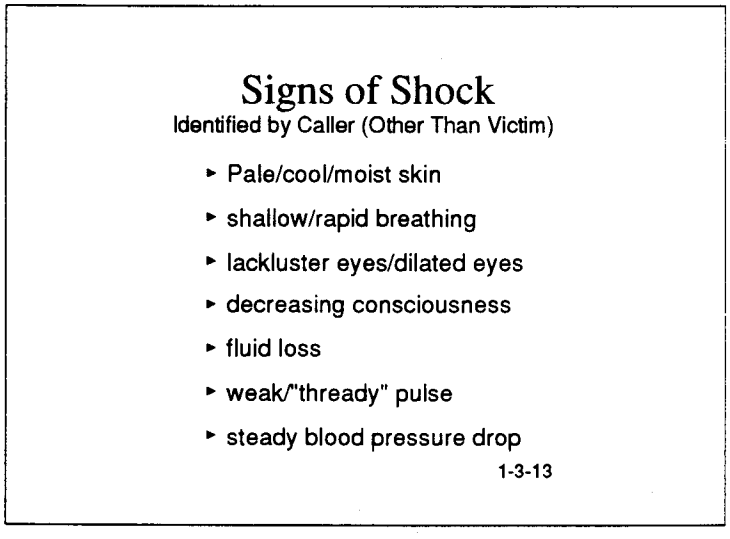
d) decreasing levels of consciousness leading to unconsciousness;

<TG PAGE 1-70>

e) fluid loss from bleeding, vomiting or diarrhea;

f) weak or "thready" pulse and

g) a steady drop in blood pressure.



Show Figure 1-3-14.

Types of shock. There are many types of shock. You may never encounter them all, but the most common are listed and described below.

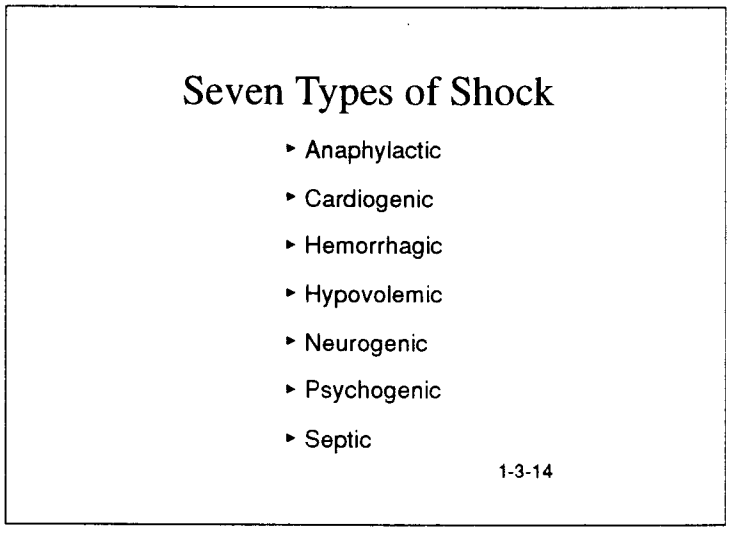
List and describe the types of shock.

1) *Anaphylactic shock* (also called "allergic shock") usually accompanies the ingestion or inhalation of a substance to which a patient is severely allergic. It frequently occurs with insect stings as well. Signs and symptoms include difficulty breathing, swelling of the face and or tongue, tightness in the chest, itching/burning skin and hives covering large parts of the body.

Describe anaphylactic shock and its causes.

TRAINEE TEXT	INSTRUCTOR NOTES
2) *Cardiogenic shock* occurs when the heart is no longer able to develop enough pressure to circulate blood properly.	**<TG PAGE 1-71>** **Describe** cardiogenic shock and its causes.
3) *Hemorrhagic shock* occurs when the body loses large amounts of blood through internal or external bleeding. It also occurs with hypovolemic shock.	**Describe** hemorrhagic shock and its causes.
4) *Hypovolemic shock* occurs when the body loses large amounts of body fluids through vomiting or diarrhea.	**Describe** hypovolemic shock and its causes.
5) *Neurogenic shock* usually occurs with spinal cord damage. Blood vessels that are normally tightened ("constricted") begin to relax and blood pressure rapidly drops. Blood begins to pool below the level of the spinal cord injury.	**Describe** neurogenic shock and its causes.
6) *Psychogenic shock* (aka "fainting;" aka "vasovagal reaction") occurs when blood vessels suddenly dilate (expand or relax) due to some shock to the system like extreme fear or minor injury. Blood flow to the brain is temporarily interrupted and the person "faints."	**Describe** psychogenic shock and its causes.
7) *Septic shock* is caused by severe infections. Toxic substances from the infection cause blood vessels to dilate and plasma to be lost through vessel walls.	**Describe** septic shock and its causes.
NOTE: The most common types of shock you will encounter are anaphylactic, cardiogenic, hemorrhagic, hypovolemic and septic.	**Tell** trainees they will mostly deal with anaphylactic, cardiogenic, hemorrhagic, hypovolemic and septic shock.

TRAINEE TEXT	INSTRUCTOR NOTES



<TG PAGE 1-72>

Dealing With Shock. Shock can kill. There are any number of things you can tell callers to do to alleviate the danger of shock until help arrives. These are listed and described below.

1) DO NOT GIVE THEM ANYTHING TO EAT OR DRINK!

2) Make sure the patient's airway is clear so they can breathe.

3) Control bleeding (if external) by the use of direct pressure.

4) Calm and reassure the patient.

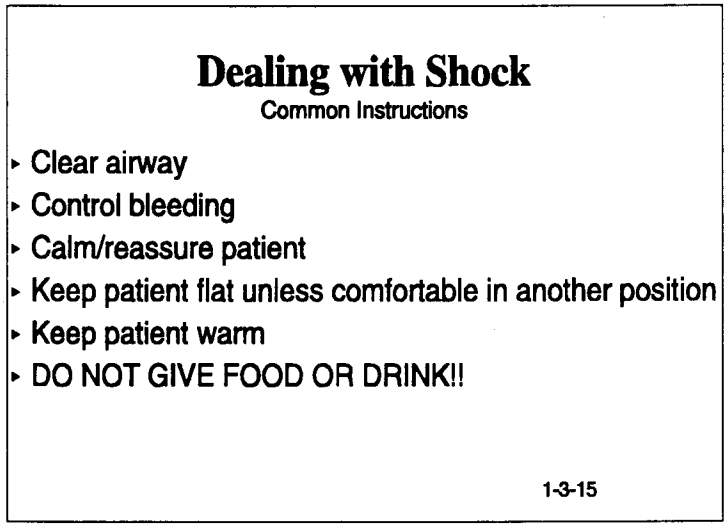
5) Lay patient on side (preferably left-side) or allow them to remain in a position that is most comfortable, unless they are trauma patients.

6) DO NOT MOVE TRAUMA PATIENTS!!!!

Show Figure 1-3-15.

Tell trainees how to deal with shock.

TRAINEE TEXT	INSTRUCTOR NOTES
7) Keep the patient warm and prevent the loss of body heat by covering the patient with something.	**<TG PAGE 1-73>**



QUESTION: *What is shock? What are its signs and symptoms? Can you name 5 types of shock? How would you tell a caller to deal with shock?*

Ask these questions, which are based on the information previously presented.

Respiratory Distress vs. Breathing Difficulty. Callers will often say that a person is "having a hard time breathing." It is up to you to determine if the caller is describing respiratory distress or breathing difficulty.

Review respiratory distress and breathing difficulty.

TRAINEE TEXT	INSTRUCTOR NOTES
It is hard to tell if a patient is suffering from respiratory distress or has a breathing problem without understanding the difference. Each can occur from a variety of sources, including benign (not dangerous) sources like allergies or colds. Because of the difficulty in distinguishing true respiratory distress from breathing difficulty, these calls can be among the most challenging you will face.	**<TG PAGE 1-74>**
Breathing Difficulty Scenarios 1) The breathing problem is present with other symptoms or chief complaint types (more on these in Module 3). 2) The patient appears sick, but it may be due to the chief complaint and not the breathing difficulty. 3) Most people have breathing difficulty when vomiting. However, this does not constitute "distress."	**Review** breathing difficulty scenarios.
True Respiratory Distress 1) Patients in true respiratory distress are *very* sick people. These patients *look, act* and *sound* sick, usually being able to speak only short phrases (or 1 to 2 word sentences) if they have to speak. Their breathing may be described by callers as very "noisy" (***or very quiet***). 2) Patients in true respiratory distress are putting all of their efforts and energy into trying to breathe or getting where they think there might be more air. They look as if they were (and still are) working hard.	**Review** "true" respiratory distress.

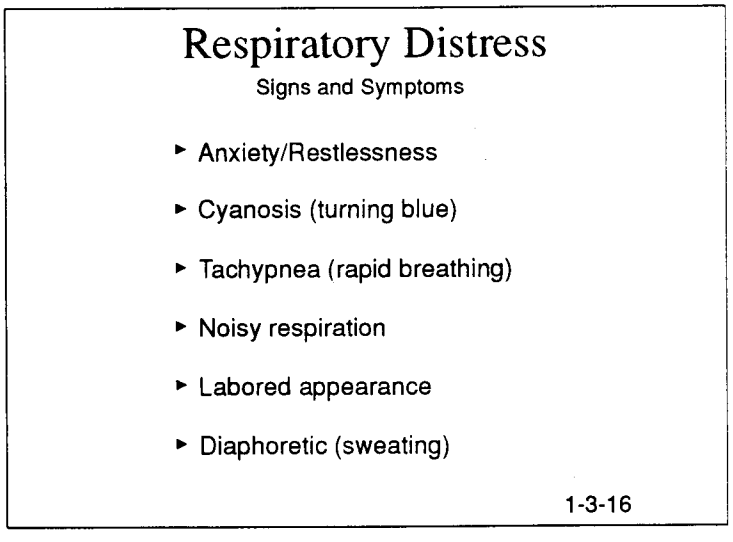
TRAINEE TEXT	INSTRUCTOR NOTES
3) Patients in respiratory distress appear sweaty (diaphoretic), pale and sometimes blue (cyanotic). What is happening is that in cases of true respiratory distress, the patient is rapidly running out of oxygen, losing the ability to keep on breathing often due to fatigue or airway obstruction. 4) Choking is also a form of respiratory distress. Persons with obstructed airways will demonstrate classic choking symptoms. The caller will immediately recognize these as such, unless the caller was not present when the victim choked and found the victim in a collapsed state. *Signs and Symptoms of Respiratory Distress* include any of the following. Symptoms and signs can occur in any combination. Some symptoms are: 1) classic choking symptoms (clutching or grasping at the throat); 2) anxiety/restlessness (as the body reacts to a lack of oxygen to the brain); 3) cyanosis (patient turning blue); 4) rapid breathing (tachypnea); 5) noisy respiration; 6) labored appearance; patient appears to be working hard and 7) the patient may be sweaty (diaphoretic).	**<TG PAGE 1-75>** **Show** Figure 1-3-16. **Describe** the signs and symptoms of true respiratory distress.

TRAINEE TEXT	INSTRUCTOR NOTES

QUESTION: *Can you describe respiratory distress? What are the major signs and symptoms of true respiratory distress? How is it different from breathing difficulty?*

<TG PAGE 1-76>

Ask these questions and review the answers with trainees.



Bleeding

Bleeding has its own set of unique problems and may elicit strong emotional responses. Severe bleeding must be treated immediately.

Discuss bleeding.

TRAINEE TEXT	INSTRUCTOR NOTES
The body attempts to stop bleeding using the process we call "clotting." Blood platelets break down and block the hole through which the blood is escaping. When the bleeding is severe (as with a cut artery), the clotting can't happen fast enough or completely enough to fill the hole, resulting in shock and then death.	
Control of Bleeding. Almost all bleeding can be stopped through the use of *direct pressure*. The caller (or a bystander) is told to use a universal bandage or clean gauze pad and press down directly on the open wound. In most situations, callers won't have these. Tell them to use the cleanest cloth available.	**<TG PAGE 1-77>** **Describe** how to control bleeding.
NOTE: ***This is very important.*** When telling callers to use direct pressure, tell them to put *a lot of pressure on the wound.* Using lots of pressure will stop even arterial bleeds.	**Tell** trainees that it's very important that callers put a lot of direct pressure on bleeding wounds.
Tell callers not to remove soaked bandages (or "dressing") because this will rip open the clot that is forming in the wound. If they feel they need to replace the bandage because it is soaked, simply place another on top and continue pressure. If the bleeding has stopped, they can tie the dressing in place with a bandage.	**Point out** that they need to be sure to tell callers NOT to remove soaked bandages but to apply more on top.
Elevate bleeding extremities. This method is good for extremities because it gets the bleeding limb up higher than the heart, thereby slowing the flow of blood through the force of gravity.	**Tell** trainees to tell callers to elevate bleeding extremities.
NOTE: In cases of internal bleeding, you just need to recognize it due to shock issues...there's not a lot you can do about it!!!	

TRAINEE TEXT	INSTRUCTOR NOTES
A Word About Tourniquets. Tourniquets can cause a lot of damage by stopping the flow of blood completely through a limb (usually). This causes nerve and cell damage that is frequently permanent and can even be the cause for an amputation.	**Discuss** tourniquets.
IF A CALLER SAYS THAT A TOURNIQUET HAS ALREADY BEEN APPLIED, LEAVE IT ON! NEVER INSTRUCT CALLERS TO APPLY A TOURNIQUET.	**<TG PAGE 1-78>** **Tell** trainees that, if a caller tells them a tourniquet has been applied, to leave it on because: 1) It may bleed again 2) Clots can travel to other parts of the body
Exercise 2: Bleeding, Shock and Respiratory Distress - Match Game ***Instructions:*** On the following page is a table consisting of questions and answers. In the left column are ten answers. Write the number of the question that corresponds to the answer found in the left column. Write your answers on the lines provided on the left side of the table. You have ten minutes to complete this exercise. Upon completion of this exercise, the instructor will review the answers with you. Be sure to ask any questions you may have at this time.	**Tell** trainees to complete Exercise 2. Answers are found in IG NOTE #2, Exercise 2, page 1-111 of this guide.

TRAINEE TEXT	INSTRUCTOR NOTES

Answers	*Questions*
Symptoms	1. Characteristics described by callers about patients?
"Impending doom," weakness, nausea coolness	2. ***Signs*** of shock?
Shock	3. Types of shock?
Signs	4. Signs of respiratory distress?
Alert, Verbal, Pain and Unresponsive	5. Characteristics described by patients about themselves?
Hypovolemic, hemorrhagic and anaphylactic	6. Process by which platelets break down and block holes where blood is escaping?
Anxiety, cyanosis, rapid breathing, labored appearance, sweaty, noisy respirations	7. Inadequate tissue perfusion; aka "silent killer?"
Neurogenic shock	8. Relaxation of blood vessels, allowing blood to pool below the level of the injury?
Moist skin; shallow breathing; dilated pupils; decreasing consciousness	9. ***Symptoms*** of shock?
Clotting	10. Four levels of consciousness?

<TG PAGE 1-79>

TRAINEE TEXT	INSTRUCTOR NOTES

Common Medical Terms

<TG PAGE 1-80>

As an EMD you will hear many medical terms. It is important that you become familiar with these terms so you can interpret them for your own use, or as needed to callers. Over time you will become more familiar with them because you will hear them frequently. Other terms that you need to become familiar with are found in ***Appendix A, Glossary.***

Have trainees review these medical terms, and tell them that others they may see or hear are found in their glossary.

Following is a list of terms with which you should become familiar.

1) ***Abdominal aortic aneurysm*** - dilated section of the lower aorta in the abdomen; can rupture causing severe pain, internal bleeding and even death

2) ***Abrasion*** - type of injury caused by the scraping away of portions of skin

3) ***Acute*** - sharp, severe or having rapid onset; usually short course and not chronic

4) ***Anaphylactic shock*** - state of collapse due to injection of or exposure to (including ingestion, breathing and skin contact) a substance to which the victim is allergic

5) ***Angina*** *(also angina pectoris)* - a steady, dull, squeezing pressure; choking or suffocating pain; almost exclusively used to indicate heart or chest pains; can radiate out to the neck, arms or shoulder; is due to the lack of adequate oxygen delivery to the heart muscle (through blockage of coronary arteries)

6) ***Anoxia*** - lack of oxygen

7) ***Appendicitis*** - inflammation of the appendix resulting in severe pain, fever and nausea

<TG PAGE 1-81>

TRAINEE TEXT	INSTRUCTOR NOTES
8) ***Arterial hemorrhage*** - bleeding from an artery; a cut or punctured artery will usually emit bright red blood in spurts or waves (though it can be a steady flow if the artery is deeply buried)	
9) ***Asthma*** - disease characterized by spasms of bronchial tubes, resulting in shortness of breath and "wheezing"; can be fatal if not quickly treated	
10) ***Benign*** - not dangerous; not recurrent or progressive	
11) ***Blood pressure*** - the pressure exerted by the blood against the walls of the arteries as it travels through the body	
12) ***Cardiac arrest*** *(aka "sudden death")* - sudden cessation of heart functions; usually confused with myocardial infarction (MI)	
13) ***Carbon monoxide*** *(CO)* - a poisonous gas found mainly in exhaust fumes of gasoline and diesel powered engines	
14) ***Cardiopulmonary Resuscitation*** *(also CPR)* - the act of attempting to restore consciousness via manual heart massage and lung inflation	
15) ***Contusion*** *(aka "bruise")* - an injury in which the skin is not broken; usually due to sudden impact with hard objects	
16) ***Cranial*** - pertaining to the skull	
17) ***Croup*** - disease characterized by difficult breathing and feelings of suffocation accompanied by an intense, barking cough and swelling of the larynx and/or upper trachea	**<TG PAGE 1-82>**

TRAINEE TEXT	INSTRUCTOR NOTES
18) ***Crowning*** - a state of childbirth in which the baby's head is seen	
19) ***Cyanosis*** *(also cyanotic)* - discoloration of the skin (usually a gray, blue or purple tint) due to a lack of oxygen in the blood	
20) ***Diaphoresis*** - profuse sweating; is one symptom of respiratory distress but can occur for any reason	
21) ***Ectopic pregnancy*** (aka "tubal pregnancy") - a potentially life-threatening circumstance when a fetus implants itself in a fallopian tube rather than the uterus; after growing there for approximately six weeks, the fetus may rupture through the wall of the tube, causing hemorrhage, severe pain and life-threatening internal bleeding	
22) ***Hemoglobin*** - iron containing pigment of the red blood cells	
23) ***Hematoma*** - swelling caused by blood outside of the blood vessel	
24) ***Hemorrhage*** - Abnormal internal/external discharge of blood	
25) ***Hiatal hernia*** - partial slippage of the upper stomach above the diaphragm; protrusion of the stomach through the diaphragm	
26) ***Hives*** - eruptions of very itchy spots on the skin; usually associated with allergies	
27) ***Hyperventilation*** - increase in the inspiration and expiration of air as a result of an increase in the rate or depth of respiration; usually accompanied by great anxiety; does not usually exist in isolation (is usually symptomatic of a more serious, underlying condition)	**<TG PAGE 1-83>**

TRAINEE TEXT	INSTRUCTOR NOTES
28) ***Hyphema*** - blood in the anterior chamber of the eye in front of the iris	
29) ***Hypothermia*** - drastic lowering of body temperature usually caused by prolonged exposure to extreme cold	
30) ***Hypovolemia*** - diminished blood volume	
31) ***Laceration*** - a tear or cut in the flesh	
32) ***Meningitis*** - inflammation of the spinal cord or brain causing intense headaches, intolerance to light or sound and possibly delirium, convulsions and/or coma	
33) ***Migraine*** - severe headache, frequently resulting in disordered/distorted vision, nausea and vomiting	
34) ***Myocardial Infarction*** (aka M.I., "heart attack") - death of an area of the heart muscle due to obstructions in blood flow or sometimes confused with cardiac arrest which is the end result of an M.I.	
35) ***Ocular trauma*** - injury to the eye	
36) ***Orbital fracture*** - a break in the portion of the skull that encases the eyeball	
37) ***Paralysis*** - loss or impairment of motor function due to injury in part of the body	
38) ***Pericarditis*** - inflammation of the sac that encloses the heart	**<TG PAGE 1-84>**
39) ***Perineum*** - the genital area	
40) ***Pulse*** - a pressure wave exerted against the arteries upon the contraction of the heart; can be felt by placing fingertips on an artery where it passes close to the skin	

TRAINEE TEXT	INSTRUCTOR NOTES
41) ***Signs*** - something a rescuer can see, hear, feel and occasionally taste concerning a patient; not the same as symptom 42) ***Stroke*** - sudden interruption of blood flow to an area of the brain (due to obstruction, bleeding, clot, etc.) causing loss of strength, feeling, speech or even decrease in consciousness 43) ***Symptom*** - something a patient expresses about themselves; examples are "My chest hurts; I'm cold; I have a sharp pain in my head," etc. 44) ***Tachypnea*** - rapid breathing; is one symptom of respiratory distress 45) ***Thoracic Aortic Aneurysm*** - dilation of a main blood vessel in the chest cavity 46) ***Tourniquet*** - a bandage wrapped tightly around an extremity used to slow or stop bleeding/blood loss 47) ***Toxic*** - poisonous 48) ***Trauma*** - an injury (physical, emotional or psychological) inflicted by some violent event or other external force 49) ***Venous*** - of or pertaining to the veins	
Summary	**<TG PAGE 1-85>**
This unit has given you the basic medical knowledge that you must have in order to successfully understand and deal with the medical issues that you will face on a daily basis. The information given to you in this unit is basic information. All descriptions and/or definitions are generic. They are not strict medical definitions.	**Review** the unit. Ask for (and answer) trainee questions.

TRAINEE TEXT	INSTRUCTOR NOTES
This unit will help prepare you for using the EMDPRS that you will be taught in Module 3. Before you get to that point though, you need to learn how to get information from the people who call you. **Module 2, Information Gathering and Dispatch** teaches you how to do this.	**Conduct** Team-Tic-Tac-Toe. See IG NOTE #3, page 1-113 of this guide. **Conduct** Module Exercise, page 1-123 of this guide.

Seven Systems of The Body

- *Nervous System*
- *Circulatory System*
- *Respiratory System*
- *Digestive System*
- *Musculoskeletal System*
- *Genito-Urinary System*
- *Skin*

The Nervous System

Parts

- ***Central Nervous System***

  - *brain and spinal cord*

- ***Peripheral Nervous System***

  - *motor and sensory nerves*

- ***Autonomic Nervous System***

  - *like the peripheral nervous system, it uses motor nerves*
  - *automatic, unconscious monitoring/regulation of internal body functions (like heartbeat, bronchial diameter, etc.)*

The Circulatory System

Parts

- *Heart*
- *Arteries*
- *Veins*
- *Capillaries*
- *Blood*

The Respiratory System

Parts

- *Pharynx*
- *Epiglottis*
- *Larynx*
- *Trachea*
- *Bronchi*
- *Lungs*
- *Bronchioles*
- *Alveoli*
- *Diaphragm/Rib Muscles*
- *Pleura*

Parts of The Lung

- ***Lung***

  - *Right broken into 3 lobes*
  - *Left broken into 2 lobes*

- ***Bronchioles***

  - *air tubes*
  - *smaller bronchi inside body of the lung*

- ***Alveoli***

  - *air sacs*
  - *trades oxygen for carbon dioxide with blood*

The Digestive System

Parts

- *Mouth*
- *Throat*
- *Esophagus*
- *Stomach*
- *Small Intestine*
- *Large Intestine*
- *Liver*

The Digestive System

Parts Continued...

- *Gall bladder*
- *Pancreas*
- *Appendix*
- *Spleen*
- *Rectum*
- *Anus*

The Musculoskeletal System

Parts

- *Head*
- *Vertebral Column*
- *Chest*
- *Upper Extremities*
- *Pelvis*
- *Lower Extremities*

The Genito-Urinary System

Parts

- *Kidneys*
- *Ureters*
- *Bladder*
- *Urethra*
- *Female Reproductive System*
- *Male Reproductive System*

The Skin

Parts

- *Epidermis*
- *Dermis (or Corium)*

Levels of Consciousness

From Highest to Lowest Level

- *Alert*
- *Verbal*
- *Pain*
- *Unresponsive*

Symptoms of Shock

Identified by Victim

- *Sense of "Impending Doom"*
- *Weakness*
- *Nausea*
- *Dizziness*
- *Coolness*
- *Restlessness/Anxiety*

Signs of Shock

Identified by Caller (Other Than Victim)

- *Pale/cool/moist skin*
- *shallow/rapid breathing*
- *lackluster eyes/dilated eyes*
- *decreasing consciousness*
- *fluid loss*
- *weak/"thready" pulse*
- *steady blood pressure drop*

Seven Types of Shock

- *Anaphylactic*
- *Cardiogenic*
- *Hemorrhagic*
- *Hypovolemic*
- *Neurogenic*
- *Psychogenic*
- *Septic*

Dealing with Shock

Common Instructions

- *Clear airway*
- *Control bleeding*
- *Calm/reassure patient*
- *Keep patient flat unless comfortable in another position*
- *Keep patient warm*
- *DO NOT GIVE FOOD OR DRINK!!*

Respiratory Distress

Signs and Symptoms

- *Anxiety/Restlessness*
- *Cyanosis (turning blue)*
- *Tachypnea (rapid breathing)*
- *Noisy respiration*
- *Labored appearance*
- *Diaphoretic (sweating)*

WORD-MATCH GAMES (Exercises 1 and 2)

Materials:

Sheet of instructions and answers to word-match games, Exercise 1 and Exercise 2

Approximate time to complete:

15 minutes

Instructions:

1) Refer trainees to page 1-61 (Exercise 1) or page 1-76 (Exercise 2) of their trainee guides.

2) For this game, trainees try to match the word, paragraph or definition in the left column with its match in the right column. They are allowed to use their guides, BUT ENCOURAGE THEM TO TRY IT WITHOUT USING THE GUIDE FIRST!!! ☺

3) Answers to the game are found on the next page.

EXERCISE 1

WORD MATCH ANSWERS

Trainee Guide "ANSWERS" Column	*Correct Answers*
Central, peripheral and autonomic	5. Three subsystems of the nervous system?
Pharynx	12. Two channeled body through which air enters/exits the body?
Pancreas	7. Regulates level of blood sugar; produces enzymes that break down starches, fats and proteins?
Motor and sensory	10. Two nerve types of the peripheral nervous system.
Kidneys, ureters, urinary bladder and urethra	11. Parts of the urinary system?
Ilium, pubic symphysis and iliac crest	2. Parts of the pelvis?
Heart, arteries, veins and capillaries	4. Four major parts of the circulatory system?
Ligaments	9. Connect bones to bones?
Red blood cells	6. Carry oxygen to the cells?
Larynx	1. Narrowest part of the respiratory system; aka "voice box"?
Tendons	3. Connect muscles to bones?
Arteries	8. Carry oxygenated blood to the body, away from the heart?

EXERCISE 2

WORD MATCH ANSWERS

Trainee Guide "ANSWERS" Column	*Correct Answers*
Symptoms	5. Characteristics described by patients about themselves?
"Impending doom," weakness, nausea coolness	9. ***Symptoms*** of shock?
Shock	7. Inadequate tissue perfusion; aka "silent killer?"
Signs	1. Characteristics described by callers about patients?
Alert, Verbal, Pain and Unresponsive	10. Four levels of consciousness?
Hypovolemic, hemorrhagic and anaphylactic	3. Types of shock?
Anxiety, cyanosis, rapid breathing, labored appearance, sweaty, noisy respirations	4. Signs of respiratory distress?
Neurogenic shock	8. Relaxation of blood vessels, allowing blood to pool below the level of the injury?
Moist skin; shallow breathing; dilate pupils; decreasing consciousness	2. ***Signs*** of shock?
Clotting	6. Process by which platelets break down and block holes where blood is escaping?

TEAM TIC - TAC - TOE

Materials:

Question and answer list
Colored Markers
Chart paper
Easel
Thumbtacks or tape

Approximate time to complete:

45 minutes

Note to the Instructor:

Following the IG NOTE #3 introductory matter you will find two "TIC-TAC-TOE" games for use while reviewing the medical content of Module 1, Unit 3. These games are provided as examples of how you may want to design your own games. They are by no means definitive, and you are free to develop others as you see fir.

The only requirements for your games are that there should be:

1. a copy for trainees to keep upon completion of the game;
2. at least two games and
3. fair and accurate representation of the medical content of this unit.

As you develop your own games, consider passing along your ideas to others. The medical content of this unit can be very difficult for others to work with creatively. Any help or ideas that you can find would probably be greatly appreciated. Also, make sure your copy of the games has instructions for playing and answers!

MODULE 1 - IG NOTE #3
Basic Emergency Medical Dispatch Concepts

Instructions:

Tape or tack two sheets of paper up (on the wall or blackboard) and draw 1 large tic-tac-toe board on each sheet of paper. For this exercise you will run two games simultaneously. This will allow trainees from all groups to hear all of the questions and answers. Teams are allowed to conference for 15 seconds in order to determine their answer.

1. Divide trainees into 4 teams. For simplicity, you can use the same teams created in the first team exercise (IG NOTE #1 from Unit 1).

2. Pair Team 1 with Team 3. They will play each other in Game A.

3. Pair Team 2 with Team 4. They will play each other in Game B.

4. Game A. Assign Team 1 as the "X" team and Team 3 as the "O" team.

5. Game B. Assign Team 2 as the "X" team and Team 4 as the "O" team.

6. Flip a coin to determine who goes first (i.e., heads then "X" teams go first, etc.).

7. Game A. Ask the first question. Coin toss winners get to go first. If they answer the question wrong, then the second team gets a chance to answer. Place an "X" or and "O" wherever they direct you in the TIC-TAC-TOE block and proceed to Game B. If neither team gets the question right, then proceed to Game B.

8. Game B. Ask the first question. Coin toss winners get to go first. If they answer the question wrong, then the second team gets a chance to answer. Place an "X" or and "O" wherever they direct you in the TIC-TAC-TOE block and proceed to Game B. If neither team gets the question right, then proceed to Game A.

9. Continue in this format until a team wins in each game.

Questions for these games are found on the following pages.

Game A

You do not have to ask these questions in any particular order. They are in the order in which they are presented in the text.

QUESTION	*ANSWER*
1. _____means that you are ultimately responsible for your actions?	Liability
2. Who can be held liable?	The EMD, the local Medical Director and/or the Agency with which s/he works.
3. Why are EMDs rarely found to be negligent?	Because they are trained according to the standards of care established for that community, which are set up to protect others against unreasonable risk or harm. Also because they have been trained to use a medically approved EMDPRS.
4. Who generally is the primary defendant in court cases involving negligence?	The agency an EMD works for.
5. When does the "duty to act" relationship begin?	As soon as the caller requests EMS assistance.
6. Describe what is meant by the term "proximate cause."	That some action taken by the defendant (EMD or Agency) caused an injury to the patient.
7. Define "simple negligence."	Negligent conduct not purposeful or due to "malicious intent."

QUESTION	ANSWER
8. Name 2 of the 4 methods used to establish a "standard of care."	a. Judge behavior in comparison to others with similar training and experience b. Judge behavior in comparison to local customs (protocols and guidelines) c. Judge behavior in comparison to local or state statutes, laws, ordinances or administrative orders d. Judge behavior in comparison to professional standards published by organizations involved in emergency work
9. Describe the "emergency rule."	It means that someone who is acting in an emergency situation cannot be held to the same standard of conduct as someone not in that situation.
10. What is the "principle of reasonableness/"	What a "reasonable person" would do in the same situation.
11. List and describe the 2 type of damages that can be awarded.	a. *Compensatory* = repaying plaintiffs for money lost or "pain and suffering" b. *Punitive* = payments used to punish defendants
12. When can immunity be granted under the "Good Samaritan" laws?	a. Person acting in good faith b. Person acting in emergency

QUESTION	*ANSWER*
13. Name 3 things an EMD cannot reveal.	a. Patient names b. What was said in conversation with the caller c. Unusual behaviors not directly attributable to a medical condition (unless danger to the responders) d. Patient lifestyle e. Knowledge of patient HIV(+) status
14. What is meant by "governmental immunity?"	Immunity stemming from laws or statutes established locally or at the state level. Does not apply to EMDs in private agencies or to cases of "gross negligence."
15. List, identify or give examples of behaviors or actions that EMDs should be concerned about.	a. Failure to send EMS resources when requested b. Subjective judgment of caller credibility c. Subjective judgment of caller chief complaint d. An argumentative or combative attitude (on behalf of EMD) e. Allowing prejudices to affect objective decision making (through prior dealing with the caller) f. Giving medical instruction without using locally approved EMDPRS g. Failure to train (or be certified) as an EMD h. Not giving instructions when needed or when a protocol exists for it

QUESTION	*ANSWER*
16. List 4 strategies used by individuals to avoid litigation.	a. Avoid inappropriate EMD behaviors b. Active participation in QA/QI and continuing education programs c. Seek/obtain certification as an EMD d. Follow policies/procedures/ practices used by your agency and community e. Report problems or problematic situations as soon as possible and in writing

GAME B

You do not have to ask these questions in any particular order. They are in the order in which they are presented in the text.

QUESTION	*ANSWER*
1. Name the situations where "Good Samaritan" laws protect you from liability.	a. Person acting in emergency b. Person acting in "good faith" c. Persons not guilty of gross negligence or malicious misconduct toward a patient
2. _____ is defined as the "failure to act or perform in a particular situation as any other reasonable, prudent dispatcher (with similar experience/training) would in similar situations.	Negligence
3. Money awarded in a lawsuit is know as _____?	Damages
4. Name 3 of the 4 criteria that courts use in establishing negligence.	a. Duty b. Breach of Duty c. Injury/Damage d. Proximate Cause/Causation
5. What is meant by "breach of duty"?	That you did not perform your duty as established by acting according to the local "standard of care."
6. What are the two types of negligence?	a. Simple b. Gross

QUESTION	*ANSWER*
7. What is meant by "gross negligence?"	Negligent actions undertaken with the intent to cause harm ("malicious intent") and with disregard for the safety of persons and or property.
8. What is "abandonment?"	Leaving a patient known to be in a life-threatening condition, including starting medical treatment and then turning over treatment to someone with less medical training than yourself (with the end result being worsening of the patient's condition).
9. Describe what is meant by "foreseeability."	You can't see what is happening at the scene, so you must rely on the information given to you by the caller. If a situation exists where the on-scene findings are different than those reported by callers then you are not liable.
10. Define "detrimental reliance."	When an action or service *does not happen*, that a person claims was reasonable to rely on the agency to perform or provide, resulting in injury or worsening of the patient's condition.
11. Name the two types of consent.	a. Actual b. Implied
12. Define "Actual Consent."	Direct verbal or non-verbal communication to someone who is giving aid.
13. Define "Implied Consent. "	In situations where someone is unconscious or unable to respond, it is safe for us to assume that the person would want to be helped.

QUESTION	ANSWER
14. List, identify or describe 3 misconceptions that EMDs tend to have.	a. EMDs need CPR certification b. EMDs need advanced medical training c. EMDs should not be afraid of relaying confidential information to responding personnel (Don't worry about violating confidentiality!!) d. EMDs should be afraid of giving medical instructions e. EMDs should fear telling callers that ambulances are on the way
15. On what 2 levels can strategies for avoiding liability be employed?	a. Individual b. Agency

QUESTION	*ANSWER*
16. List and describe 5 strategies an agency can use to avoid liability.	a. Well-defined screening and hiring practices b. Use of a well-organized, well-written orientation and training program c. Regular/objective progress reports for probationary personnel d. Clearly defined job expectations and work descriptions e. Regular review and update of policies and procedures f. Provision of proper EMD training and certification g. Appropriate implementation of an EMD program h. Adequate EMD program management i. Use of a physician to provide medical direction for the program j. Establishment and use of a QA/QI program for dispatch k. Implement ongoing continuing education program l. Budgeting for QA/QI improvements

MODULE EXERCISE

Materials:

Question and answer list

Approximate time to complete:

1 hour or until all members of 3 (out of 4) teams are sitting...whichever comes first.

Note to the Instructor:

The Module Exercise that follows this introductory matter is designed to provide an accurate account of the information contained in Module 1, Units 1 through 3. The questions in this exercise are sample questions.

You may want to test individual knowledge in the form of a written exercise. One way to accomplish this is to use a "fill-in-the-blank" or multiple choice format. The format we have chosen to use is an example of another method of assessing trainee knowledge. There is no "one best way" to do this. Our example is just that, an example. You are free to design your own exercise.

The only requirements for your exercise are that it have:

1. a fair and accurate representation of the content of this module;
2. a copy for the trainees to keep/review and
3. answers for any questions, exercise, etc. that you decide to use.

As you develop your own exercises, consider passing along your ideas to others. The content of this module does not necessarily lend itself creative thought! Any help or ideas that you can provide would probably be greatly appreciated by others.

MODULE 1
Basic Emergency Medical Dispatch Concepts
Module Exercise

Instructions:

For this exercise you will have participants line up in their 4 teams at the front of the room. This will allow trainees from all groups to hear all of the questions and answers. Teams are allowed to conference for 15 seconds in order to determine their answer, and they can answer as a group.

1. Divide trainees into 4 teams. For simplicity, you can use the same teams created in the first team exercise (IG NOTE #1 from Unit 1).

2. Ask the first team the first question.

    a. *If the first team to attempt answering gets it right,* the first person in that team sits down and you proceed to the second question and the next team gets the first opportunity to answer it.

    b. *If the first team to attempt answering gets it wrong,* then the question goes to the next team, and so on, until someone gets it right.

    c. *If nobody gets the first question right,* proceed to the second question and the second team gets the opportunity to answer first.

3. If none of the four teams gets it right, read the answer aloud and explain it (as required). Stress that this information may be seen again, *like on the final examination.*

4. Proceed in this fashion until all members of the three teams are sitting, you have run out of questions or time has expired. At this point the game is over and you can proceed to the next training module.

Questions for this exercise are found on the following pages. **You do not have to ask these questions in any particular order. They are in the order in which the information is presented in the text - just don't lose your place or ask the same question twice (unless you're being tricky!!).** ☺

QUESTIONS FOR MODULE 1 EXERCISE

QUESTION	*ANSWER*
Module 1 Unit 1 Questions	
1. Name 3 misconceptions about EMDs.	a. Callers too upset to give useful responses b. Callers unable to give useful information to EMD c. Medical knowledge unimportant, therefore use other public-safety dispatchers d. Dangerous NOT to "go lights and sirens" e. EMD too busy dispatching to give medical instructions f. Medical advice over phone can't help patients (may actually be dangerous)
2. ***True or False?*** The EMD must determine the nature and severity of the medical incident type.	True
3. ***True or False?*** It is not the EMD's job to help ensure the safety of bystanders, callers, patients and responding personnel.	False
4. The EMD uses the _____ to provide pre-arrival instructions to callers that prepare them for the responder's arrival	Emergency Medical Dispatch Protocol Reference System (EMDPRS)

QUESTION	*ANSWER*
5. Name 5 characteristics of a successful EMD.	a. Helpful/compassionate b. Handles stress c. Masters skills/philosophy of EMD d. Gathers and prioritizes information e. Assists responder in locating patients f. Determines nature of medical emergency without diagnosing g. Helps responders on-scene by doing as they request h. Reacts passively to hostile callers i. Maintains confidentiality
6. What are the three phases of the dispatch function?	a. Call Receiving b. Dispatch c. Post-Dispatch
7. Describe what happens during the call-receiving phase.	EMD takes call, interrogates caller to determining chief complaint and goes to EMDPRS for additional interrogation and information
8. List in order the five questions the EMD is trying to answer by using the interrogation procedures.	a. Where? b. What? c. How? d. Who? e. When?

QUESTION	ANSWER
9. Name 3 resources commonly found in most EMS systems.	a. BLS/ALS b. Fire personnel c. Police personnel d. Hospitals/Emergency Care Facilities e. *Instructor: At your discretion you can accept the following as well.* • HAZMAT • Rape Crisis • Burn Centers • Language Banks • National Guard Units
10. What is a tiered system? What are 4 of the more common tiers?	An EMS system with more than one level of response. Four common tiers include First responders, BLS, ALS and Air Ambulance/Aeromedical.
11. Name the two most common response modes.	a. Cold response b. Hot response
12. Describe what is meant by a "cold" response.	The ambulance responds without using lights or sirens as part of the normal traffic flow.
13. Describe what is meant by a "hot" response.	The ambulance responds using lights and sirens and is allowed special traffic privileges.
Module 1 Unit 2 Questions	
14. _____ means that you are ultimately responsible for your actions?	Liability
15. Who can be held liable?	The EMD and/or the Agency with which s/he works.

QUESTION	ANSWER
16. Why are EMDs rarely found to be negligent?	Because they are trained according to the standards of care established for that community, which are set up to protect others against unreasonable risk or harm.
17. Who generally is the primary defendant in court cases involving negligence?	The agency an EMD works for.
18. When does the "duty to act" relationship begin?	As soon as the caller requests EMS assistance.
19. Describe what is meant by the term "proximate cause."	That some action take by the defendant (EMD or Agency) caused an injury to the patient.
20. Define "simple negligence."	Negligent conduct not purposeful or due to "malicious intent."
21. Name 2 of the 4 methods used to establish a "standard of care."	a. Judge behavior in comparison to others with similar training and experience b. Judge behavior in comparison to local customs (protocols and guidelines) c. Judge behavior in comparison to local or state statutes, laws, ordinances or administrative orders d. Judge behavior in comparison to professional standards published by organizations involved in emergency work
22. Describe the "emergency rule."	It means that someone who is acting in an emergency situation cannot be held to the same standard of conduct as someone not in that situation.
23. What is the "principle of reasonableness?"	What a "reasonable person" would do in the same situation.

QUESTION	ANSWER
24. List and describe the 2 type of damages that can be awarded.	a. *Compensatory* = repaying plaintiffs for money lost or "pain and suffering" b. *Punitive* = payments used to punish defendants
25. When can immunity be granted under the "Good Samaritan" laws?	a. Person acting in good faith b. Person acting in emergency
26. List or identify 3 things an EMD cannot reveal.	a. Patient names b. What was said in conversation with the caller c. Unusual behaviors not directly attributable to the medical condition (unless there is danger to the responders) d. Patient lifestyle e. Knowledge of patient HIV(+) status
27. What is meant by "governmental immunity?"	Immunity stemming from laws or statutes established locally or at the state level. Does not apply to EMDs in private agencies or to cases of "gross negligence."

QUESTION	*ANSWER*
28. List or describe 5 attributes or behaviors that EMDs should be concerned about.	a. Failure to send EMS resources when requested b. Subjective judgment of caller credibility c. Subjective judgment of caller chief complaint d. An argumentative or combative attitude (on behalf of EMD) e. Allowing prejudices to affect objective decision making (through prior dealing with the caller) f. Giving medical instruction without using locally approved EMDPRS g. Failure to train (or be certified) as an EMD h. Not giving instructions when needed or when a protocol exists for it
29. List, identify or describe 4 strategies used by individuals to avoid litigation.	a. Avoid inappropriate EMD behaviors b. Active participation in QA/QI and continuing education programs c. Seek/obtain certification as an EMD d. Follow policies/procedures/ practices used by your agency and community e. Report problems or problematic situations as soon as possible and in writing

QUESTION	ANSWER
30. Name the situations where "Good Samaritan" laws protect you from liability.	a. Person acting in emergency b. Person acting in "good faith" c. Persons not guilty of gross negligence or malicious misconduct toward a patient
31. _____ is defined as the "failure to act or perform in a particular situation as any other reasonable, prudent dispatcher (with similar experience/training) would in similar situations.	Negligence
32. Money awarded in a lawsuit is know as _____?	Damages
33. Name 3 of the 4 criteria that courts use in establishing negligence.	a. Duty b. Breach of Duty c. Injury/Damage d. Proximate Cause/Causation
34. What is meant by "breach of duty"?	That you did not perform your duty as established by acting according to the local "standard of care."
35. What are the two types of negligence?	a. Simple b. Gross

QUESTION	*ANSWER*
36. What is meant by "gross negligence?"	Negligent actions undertaken with the intent to cause harm ("malicious intent") and with disregard for the safety of persons and or property.
37. What is "abandonment?"	Leaving a patient known to be in a life-threatening condition, including starting medical treatment and then turning over treatment to someone with less medical training than yourself (with the end result being worsening of the patient's condition).
38. Describe what is meant by "foreseeability."	You cant' see what is happening at the scene, so you must rely on the information given to you by the caller. If a situation exists where the on-scene findings are different than those reported by callers then you are not liable.
39. Define "detrimental reliance."	When an action or service *does not happen* that a person claims was reasonable to rely on the agency to perform or provide, resulting in injury or worsening of the patient's condition.
40. Name the two types of consent.	a. Actual b. Implied
41. Define "Actual Consent."	Direct verbal or non-verbal communication to someone who is giving aid.
42. Define "Implied Consent. "	In situations where someone is unconscious or unable to respond, it is safe for us to assume that the person would want to be helped.

QUESTION	ANSWER
43. Name 3 inappropriate concerns that EMDs tend to have.	a. EMDs should be certified as EMD instructors b. EMDs should have advanced medical knowledge c. EMDs should relay confidential information to responding personnel d. EMDs should fear being sued for giving medical instructions. e. EMDs should fear telling callers that an ambulance is "on the way."
44. On what 2 levels can you employ strategies for avoiding liability?	a. Individual b. Agency
45. List and describe 5 strategies an agency can use to avoid liability.	a. Well-defined screening and hiring practices b. Use of a well-organized, well-written orientation and training program c. Regular/objective progress reports for probationary personnel d. Clearly defined job expectations and work descriptions e. Regular review and update of policies and procedures f. Provision of proper EMD training and certification g. Appropriate implementation of an EMD program

QUESTION	ANSWER
	h. Adequate EMD program management i. Use of a physician to provide medical direction for the program j. Establishing and use of a QA/QI program for dispatch k. Implement ongoing continuing education program l. Budgeting for QA/QI improvements
Module 1 Unit 3 Questions	
46. Name 4 of the 6 systems of the body.	a. Nervous system b. Circulatory system c. Respiratory d. Digestive System e. Musculoskeletal system f. Genito-Urinary system
47. Name the 3 subsystems of the nervous system.	a. Central nervous system b. Peripheral nervous system c. Autonomic nervous system
48. Name the 2 parts of the central nervous system.	a. Brain b. Spinal cord
49. Name the 2 types of nerves found in the peripheral nervous system.	a. Motor nerves b. Sensory nerves

QUESTION	ANSWER
50. Name the parts of the autonomic nervous system.	a. Uses motor nerves like peripheral nervous system
51. What does the autonomic nervous system control (name 3)?	a. Heartbeat b. Force of the heart's contractions c. Blood vessel diameter d. Bronchial diameter e. Pupillary action (pupils)
52. Name 3 of the 5 major parts of the circulatory system.	a. Heart b. Arteries c. Veins d. Capillaries e. Blood
53. There are 10 parts to the respiratory system, name 5.	a. Pharynx b. Epiglottis c. Larynx d. Trachea e. Bronchi f. Lungs g. Bronchioles h. Alveoli i. Diaphragm/rib muscles j. Pleura

QUESTION	ANSWER
54. The digestive system has 13 major parts, name 7.	a. Mouth b. Throat c. Esophagus d. Stomach e. Small intestine f. Large intestine g. Liver h. Gall bladder i. Pancreas j. Appendix k. Spleen l. Rectum m. Anus
55. What is the purpose of the musculoskeletal system?	a. Supports body b. Provides movement c. Protects vital organs d. Bones make and destroy blood cells

QUESTION	ANSWER
56. What are the 3 components of the musculoskeletal system?	a. Muscles b. Bones c. Connective tissues (ligaments and tendons)
57. There are 6 parts to the musculoskeletal system, name 4.	a. Head b. Vertebral column c. Chest d. Upper extremities e. Pelvis f. Lower extremities
58. Name 3 of the 4 parts of the upper extremity.	a. Shoulder girdle b. Arm c. Forearm d. Hand
59. Name 2 of the 3 parts of the lower extremity.	a. Upper leg b. Lower leg c. Foot
60. Name the parts of the hand.	a. Carpal b. Metacarpals c. Phalanges

QUESTION	ANSWER
61. How many bones are there in the spinal column?	Thirty-three
62. Name the 3 types of bones in the foot.	a. Tarsals b. Metatarsals c. Phalanges
63. Name the 3 types of muscles.	a. Voluntary b. Involuntary c. Cardiac
64. What do tendons do?	Connect muscles to bones
65. What do ligaments do?	Connect bones to other bones
66. What are 2 of the 4 parts of the genito-urinary system that are common to both men and women?	a. Kidneys b. Ureters c. Urinary bladder (bladder) d. Urethra
67. Name 3 of the 4 parts of the female reproductive system.	a. Fallopian tubes b. Ovaries c. Uterus d. Vagina
68. Name 2 of the 3 parts of the male reproductive system.	a. Testes b. Scrotum c. Penis

QUESTION	ANSWER
69. Name 3 time-sensitive criteria used to determine dispatch criteria (what does the medical director use to establish dispatch types?)	a. Consciousness b. Shock c. Respiratory distress
70. Name the 4 levels of consciousness (descriptions are acceptable at the instructor's discretion).	a. Alert b. Verbal c. Pain d. Unresponsive
71. What are 3 questions you can use to determine the level of a patient's consciousness?	a. Is the patient awake? b. Have you tried to wake them up? c. Can they talk to you?
72. What is shock?	It is defined as the "lack of tissue perfusion." It simply means that there is a lack of circulation throughout the body, particularly to the heart, lungs, kidneys and brain.

QUESTION	*ANSWER*
73. Name 5 of the 7 symptoms of shock.	a. Feeling of "impending doom" b. Weakness c. Nausea d. Thirst e. Dizziness f. Coolness g. Restlessness/anxiety
74. Name 5 of the 7 signs of shock.	a. Pale/cool/moist skin b. Shallow/rapid breathing c. Dull/lackluster eyes or dilated pupils d. Decreasing levels of consciousness e. Fluid loss from bleeding, vomiting or diarrhea f. Weak/"thready" pulse g. Steady drop in blood pressure

QUESTION	ANSWER
75. Name 5 types of shock.	a. Anaphylactic b. Cardiogenic c. Hemorrhagic d. Hypovolemic e. Neurogenic f. Psychogenic g. Septic
76. List, describe or identify 6 things you can tell callers to do for persons going into shock.	a. DO NOT GIVE THEM ANYTHING TO EAT OR DRINK! b. Make sure the patient's airway is clear so they can breathe. c. Control bleeding (if external) by the use of direct pressure. d. Calm and reassure the patient. e. Lay patient on side (preferably left-side) or allow them to remain in a position that is most comfortable, unless they are trauma patients. f. DO NOT MOVE TRAUMA PATIENTS!!!! g. Keep the patient warm and prevent the loss of body heat by covering the patient with something.

QUESTION	*ANSWER*
77. List, describe or identify 5 of the 6 symptoms of respiratory distress.	a. Anxiety/restlessness b. Cyanosis (turning blue) c. Rapid breathing (tachypnea) d. Noisy respiration e. Labored appearance (looks like they are working hard) f. Sweaty (diaphoretic)
78. Describe the role of platelets in clotting.	Blood platelets go to the wound and break down to block the hole.
79. What is the most effective way to stop bleeding?	Direct pressure
80. What should callers do when bandages become soaked with blood?	Apply more clean bandages and do not remove the old ones.
81. What do you do about tourniquets?	Tell caller not to apply them. However, if the caller says one has already been applied then tell them to leave it on.
82. Describe the difference between a bleeding artery and a bleeding vein.	a. Artery bleeds with spurts of bright red blood b. Vein bleeds in an oozing/pulsing fashion with dark red blood
83. What is the purpose of arteries?	To carry blood from the heart to the rest of the body

QUESTION	*ANSWER*
84. What do veins do?	Carry blood back to the heart after it has dropped its oxygen payload and picked up waste products from cells
85. What is the difference between a (cardiac arrest) heart attack and a myocardial infarction?	Heart attack is the cessation of heart functions, while a myocardial infarction is the actual death of a part of the heart muscle due to a lack of oxygen. *A heart attack is the end result of a MI.*
86. What is the difference between a sign and a symptom?	a. Sign is something a rescuer can see, hear feel, touch, smell or taste. b. Symptom is something that patients express about themselves (like "I'm hot/cold," "My chest hurts," etc.)